

LPDES FACT SHEET AND RATIONALE
FOR THE DRAFT LOUISIANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(LPDES) PERMIT TO DISCHARGE TO WATERS OF LOUISIANA

COMPANY/FACILITY: Placid Refining Company LLC
Placid Refining Company
1940 LA Highway 1 North
Port Allen, Louisiana 70767

ISSUING OFFICE: Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

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DATE PREPARED: March 20, 2006

1. PERMIT STATUS

- A. Reason For Permit Action:
Reissuance of a Louisiana Pollutant Discharge Elimination System (LPDES) permit for a 5-year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.2301.F, 4901, and 4903.

- B. LPDES permit: LA0039390
LPDES permit effective date: March 1, 2001
LPDES permit expiration date: February 28, 2006
- C. Date Application Received: August 25, 2005
Additional Information Received: March 7, 2006

2. FACILITY INFORMATION

- A. LOCATION – 1940 LA Highway 1 North in Port Allen, West Baton Rouge Parish
(Latitude: 30° 28' 33" Longitude: 91° 12' 40")
- B. FACILITY TYPE/ACTIVITY – According to the application, Placid Refining Company is a petroleum refinery that refines sweet crude oil to produce gasoline, diesel, jet fuel, petroleum gases, and naptha. Process operations include crude treatment, vacuum distillation, FCC/alkylation and solvent deasphalting. The facility includes a tank farm, terminal, marine – related transportation (dock), process units, wastewater treatment units, and a truck rack.

The facility is proposing to also transport tank draw water from a subsidiary terminal company located in Louisiana to the Port Allen facility. The terminal facility handles refined products produced at the refinery. The refined product in the tank draw water (approximately 1-5%) will be recovered in existing equipment for reprocessing and the remaining water will be treated in the existing wastewater treatment unit (Outfall 001). The amount brought onsite will not be more than 5,000 gallons per month.

C. TECHNOLOGY BASIS - (40 CFR Chapter 1, Subchapter N/Parts 401, and 405-471 have been adopted by reference at LAC 33:IX.4903)

<u>Guideline</u>	<u>Reference</u>
Petroleum Refining Point Source Category	40 CFR 419 Subpart B

Feedstock rate = 50 K bbl/day

<u>Unit Process</u>	<u>Unit Process Rate (K bbl/day)</u>
Atmospheric Crude Distillation	50
Crude Desalting	50
Vacuum Crude Distillation	25
Fluid Catalytic Cracking	20
Catalytic Reforming	8.5

Stormwater to Treatment System = 0.111 MGD

Other sources of technology based limits:

1. LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6)
2. LPDES General Permit for Hydrostatic Test Water Discharges (LAG670000), effective 2/1/03, modified on 3/1/03 and 9/1/05
3. Best Professional Judgement

D. FEE RATE

1. Fee Rating Facility Type: Major
2. Complexity Type: V
3. Wastewater Type: II
4. SIC code: 2911

3. RECEIVING WATER

- A. Mississippi River (Outfall 001)
Basin and Subsegment: Mississippi River Basin, Segment 070301
TSS (15%), mg/L: 50.8 mg/L
Average Hardness, mg/L: 154.0 mg/L
Critical Flow, CFS: 141,955
Mixing Zone Fraction: .333
Harmonic Mean Flow, CFS: 366,748
Designated Uses - primary contact recreation, secondary contact recreation, fish and wildlife propagation, and drinking water supply.

Information based on the following: Recommendation(s) from the Engineering Section. Determinations of water quality characteristics were taken from ambient monitoring station No. 318 on the Mississippi River at the LA 10 ferry landing in St. Francisville, Louisiana, midstream.

- B. Intracoastal Waterway via highway ditch (Outfalls 002, 003, 004, 005, 006, & 007)
Basin and Subsegment: Terrebonne Basin, Segment 120109
Designated Uses - primary contact recreation, secondary contact recreation, and fish and wildlife propagation.

4. OUTFALL INFORMATION

Outfall 001

- A. Discharge Type: Continuous discharge of treated process wastewater, treated process area stormwater, treated sanitary wastewater, treated utility wastewaters (including, but not limited to boiler blowdown, cooling tower blowdown, boiler steam, and laboratory and terminal wastewaters), and tank draw water from a subsidiary terminal.
- B. Treatment: Sedimentation
Flotation
Activated sludge
Rapid sand filter
Belt Filtration
- C. Location: At the point of discharge from the treatment facility prior to combining with the waters of the Mississippi River.
(Lat 30° 28' 28", Lon 91° 12' 8")
- D. Flow: .844 MGD
- E. Discharge Route: Mississippi River
- F. Basin and Segment: Mississippi River Basin, segment 070301
- G. Effluent Data: The effluent data are contained in Appendix C

Outfall 002

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from the northern lay down area and parking lot.
- B. Treatment: Oil/water separator
- C. Location: At the point of discharge from the oil/water separator at the northern lay down area of the facility prior to combining with other waters. (Lat 30° 28' 33", Lon 91° 12' 40")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

Outfall 003

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from the boiler house, maintenance shop area, and administrative parking lot.
- B. Treatment: Oil/water separator
- C. Location: At the point of discharge from the oil/water separator at boiler control house and maintenance shop area of the facility prior to combining with other waters. (Lat 30° 28' 31", Lon 91° 12' 40")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

Outfall 004

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from the west central plant area and storage lagoon.
- B. Treatment: Oil/water separator
- C. Location: At the point of discharge from the oil/water separator at the storage lagoon prior to combining with other waters. (Lat 30° 28' 28", Lon 91° 12' 39")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

Outfall 005

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from non-process areas surrounding the amine and sulphur units.
- B. Treatment: Oil/water separator
- C. Location: At the point of discharge from the oil/water separator at the southwest corner of the facility prior to combining with other waters. (Lat 30° 28' 23", Lon 91° 12' 35")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

Outfall 006

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from the tank farm (south central area of the facility), previously monitored uncontaminated stormwater runoff from the storage lagoon, and previously monitored hydrostatic test wastewater from Internal Outfall 106.
- B. Treatment: Oil/water separator
- C. Location: at the point of discharge from the oil/water separator in the south central area of the facility prior to combining with other waters. (Lat 30° 28' 23", Lon 91° 12' 29")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

Internal Outfall 106

- A. Discharge Type: Discharge of hydrostatic test wastewater
- B. Treatment: None
- C. Location: At the point of discharge from the piping, vessel, and/or tank being tested prior to mixing with other waters of Final Outfall 006
- D. Flow: Varies
- E. Discharge Route: Through Final Outfall 006

Outfall 007

- A. Discharge Type: Intermittent discharge of low contamination potential stormwater runoff from the tank farm area.
- B. Treatment: Oil/water separator
- C. Location: at the point of discharge from the oil/water separator at the light ends storage area and adjacent areas of the facility prior to combining with other waters. (Lat 30° 28' 23", Lon 91° 12' 22")
- D. Flow: Intermittent
- E. Discharge Route: Intracoastal Waterway via highway ditch
- F. Basin and Segment: Terrebonne Basin, segment 120109

5. PREVIOUS EFFLUENT LIMITATIONS

See Appendix D - previous permit limits.

6. SUMMARY OF PROPOSED PERMIT CHANGES

Outfall 001

1. The outfall description has been changed for clarification purposes. The change consists of listing the wastewater types that constitute the utility wastewaters that are discharged through Outfall 001.
2. Tank draw water from a subsidiary terminal company has been incorporated as an additional wastewater type of Outfall 001.
3. The effluent limitations for BOD₅, TSS, Oil & Grease, COD, Ammonia, Sulfide, Phenolic Compounds, Total Chromium, and Chromium (6+) have decreased due to current production rates.
4. Total mercury has been removed from this proposed LPDES permit. Total mercury was added in the current LPDES permit based on water quality issues. According to Louisiana's Final 2004 Section 303(d) List of Impaired Waterbodies Requiring a TMDL (2004 List), the Mississippi River Basin, Segment No. 070301 does not have any listed impairments on the 303(d) list and is in compliance with water quality standards. In addition, a water quality screen was conducted for mercury (see Appendix B) which revealed that this outfall did not require water quality based effluent limitations.

Outfall 006

1. Hydrostatic test water from Internal Outfall 106 has been added to the outfall description as an additional discharge from Outfall 006.

Internal Outfall 106

1. Internal Outfall 106 (hydrostatic test water) has been added to this draft LPDES permit.

7. PROPOSED PERMIT LIMITS

The specific effluent limitations and/or conditions will be found in the draft permit. Development of permit limits are detailed in the Permit Limit Rationale section below.

8. PERMIT LIMIT RATIONALE

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS, MONITORING FREQUENCIES AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. The permittee is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

Manufacturing Operation
Petroleum Refining Point
Source Category

Guideline
40 CFR 419 Subpart B

Calculations and basis of permit limitations are found at Appendix A and associated appendices. See below for site-specific considerations.

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations and/or specific analytical results from the permittee's application were screened against state water quality numerical standard based limits by following guidance procedures established in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001. Calculations, results, and documentation are given in Appendix B.

In accordance with LAC 33:IX.2707.D.1/40 CFR § 122.44(d)(1), the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix B.

The following pollutants received water quality based effluent limits:

None

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001. They are also listed in Part II of the permit.

D. MONITORING FREQUENCIES

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48(b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I/40 CFR 122.44(I)]. Specific monitoring frequencies per outfall are listed in Section E.

E. OUTFALL SPECIFIC RATIONALES

Outfall 001

1. General Comments

According to the application, this outfall discharges treated process wastewater, treated process area stormwater, treated sanitary wastewater, treated utility wastewaters (including, but limited to including, but not limited to boiler blowdown, cooling tower blowdown, boiler steam, and laboratory and terminal wastewaters), and tank draw water from a subsidiary terminal company located in Louisiana.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (MGD)	Report	Report	Continuous	Recorder
pH – Range Excursions (Continuous Monitoring), Number of Events > 60 Minutes	0*	---	Continuous	Recorder
pH – Range Excursions (Continuous Monitoring) Monthly Total Accumulated Time in Minutes	446*	---	Continuous	Recorder
pH – Minimum/Maximum Values (Standard Units)	Report Minimum	Report Maximum	Continuous	Recorder
BOD ₅	276 lbs/day	497 lbs/day	3/week	24 - hr Composite
TSS	221 lbs/day	347 lbs/day	2/week	24 - hr Composite
Oil & Grease	81 lbs/day	152 lbs/day	3/week	Grab
COD	1924 lbs/day	3719 lbs/day	3/week	24 - hr Composite
Ammonia (as N)	137 lbs/day	302 lbs/day	1/week	24 - hr Composite
Sulfide (as S)	1.3 lbs/day	3.0 lbs/day	1/week	Grab
Phenolic Compounds	1.5 lbs/day	3.7 lbs/day	1/week	Grab
Total Chromium	1.8 lbs/day	5.2 lbs/day	1/year	24 - hr Composite
Chromium (6+)	0.2 lbs/day	0.4 lbs/day	1/year	24 - hr Composite
Biomonitoring	See Below	See Below	1/year	See Below

* The pH shall be within the range of 6.0 – 9.0 standard units at all times subject to the continuous monitoring pH range excursion provisions at Part II.I

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.1.1.b/40 CFR 122.44(l)(1)(ii). The monitoring frequency is continuous by recorder.

pH - The limitations and reporting requirements for pH are retained from the current LPDES permit. The requirements are based on LAC 33:IX.1113.C.1 and 40 CFR 419 Subpart B. The monitoring frequency is continuous by recorder.

BOD₅, TSS, Oil & Grease, COD, Ammonia (as N), Sulfide (as S), Phenolic Compounds, Total Chromium, and Chromium (6+) – The monthly average and daily maximum effluent limitations for BOD₅, TSS, oil & grease, COD, ammonia (as N), sulfide (as S), phenolic compounds, total chromium, and chromium (6+) have decreased due to current production rates. These limitations are based on 40 CFR 419 Subpart B. The monitoring frequencies and sample types for each parameter are retained from the current LPDES permit.

Biomonitoring Requirements - It has been determined that there may be pollutants present in the effluent which may have the potential to cause toxic conditions in the receiving stream. The State of Louisiana has established a narrative criteria which states, "toxic substances shall not be present in quantities that alone or in combination will be toxic to plant or animal life." The Office of Environmental Services requires the use of the most recent EPA biomonitoring protocols.

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. The biomonitoring procedures stipulated as a condition of this permit for Outfall 001 are as follows:

TOXICITY TESTS

Acute static renewal 48-hour
definitive toxicity test using
fathead minnow (Pimephales promelas)

FREQUENCY

once per year

Acute static renewal 48-hour
definitive toxicity test using
Daphnia pulex

once per year

Toxicity tests shall be performed in accordance with protocols described in the latest revision of the "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms." The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge in accordance with regulations promulgated at LAC 33:IX.2715/40 CFR Part 122.48.

Results of all dilutions as well as the associated chemical monitoring of pH, temperature, hardness, dissolved oxygen, conductivity, and salinity shall be documented in a full report according to the test method publication mentioned in the previous paragraph. The permittee shall submit a copy of the first full report to the Office of Environmental Compliance. However, the full report and subsequent reports are to be retained for three (3) years following the provisions of Part III.C.3 of this permit. The permit requires the submission of certain toxicity testing information as an attachment to the Discharge Monitoring Report.

This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.3105/40 CFR 124.5. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

Dilution Series - The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 0.012%, 0.016%, 0.021%, 0.028%, and 0.037%. The low-flow effluent concentration (critical dilution) is defined as 0.028% effluent.

Outfall 002

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff. This outfall drains an area of approximately 8.87 acres of which a small fraction is impervious. The area drained by this outfall consists of a large gravel and grass laydown area, two warehouses, and a parking lot. The largest is in the laydown area.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH -Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.1.1.b/40 CFR 122.44(I)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Outfall 003

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff. This outfall drains an area of approximately 2.53 acres all of which is impervious. This area consists of mostly office or administration buildings, maintenance building and the boiler shed. This outfall has a gate valve which is opened on an as-needed basis.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH - Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.I.1.b/40 CFR 122.44(I)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Outfall 004

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff. This outfall drains an area of approximately 11.15 acres which 9.19 are impervious. Of the impervious area, approximately 6.82 acres are process areas. This area is the main production area of the refinery. It contains the alkylation unit, the F.C.C. unit, the hydrotreater/reformer unit, the vacuum unit, the rose unit, the HTU/reformer unit, the cooling tower and the Crude Process Area. All process units are curbed and the water that falls within the curbed areas is routed to the wastewater treatment plant. Opening of a gate valve is required to allow this outfall to function. This outfall is valved and is only used when flooding conditions exist (i.e., typically less than once in 10 years).

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH - Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.I.1.b/40 CFR 122.44(I)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Outfall 005

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff. This outfall drains an area of approximately 5.76 acres of which 4.53 are impervious. Of the impervious area, approximately 3.61 acres are process areas. This area houses the remaining refining process units. The cyro unit, the amine/sulphur units, and the diesel HTU/sulphur recovery unit are located in this area. All process units are curbed and the water that falls within the curbed areas is routed to the wastewater treatment plant. This outfall is valved and is only used when flooding conditions exist (i.e., typically less than once in 10 years).

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH -Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.1.1.b/40 CFR 122.44(I)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Outfall 006

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff and previously monitored hydrostatic test water from Internal Outfall 106. This outfall drains the largest portion of the plant. This area is approximately 42.37 acres of which only 11.16 acres are impervious. This area houses the in-plant tank farm, the wastewater treatment facility, and the fire water pond. The wastewater treatment facility is curbed and contact rainwater from the curbed areas is pumped to the wastewater treatment plant. The tank farm diked areas are valved to keep spills out of the storm water system prior to removal.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH - Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.I.1.b/40 CFR 122.44(I)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Internal Outfalls

In accordance with LAC 33:IX.3305/40 CFR 124.56, the following is an explanation for the establishment of Internal Outfall 106. Certain permit effluent limitations at the point of discharge are impractical because at the final discharge point the wastes at the point discharge are so diluted as to make monitoring impracticable. Therefore, in accordance with LAC 33:IX.2709.H/40 CFR 122.45(h) the internal outfalls described below are established.

Internal Outfall 106

1. General Comments

According to the application, this internal outfall discharges hydrostatic test water through Final Outfall 006.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow (MGD)	---	Report	1/prior to discharge event	Estimate
TSS	---	90 mg/L	1/prior to discharge event	Grab
Oil & Grease	---	15 mg/L	1/prior to discharge event	Grab
TOC*	---	50 mg/L	1/prior to discharge event	Grab
Benzene**	---	50 µg/L	1/prior to discharge event	Grab
Total BTEX**	---	250 µg/L	1/prior to discharge event	Grab
Lead**	---	50 µg/L	1/prior to discharge event	Grab

* Total Organic Carbon (TOC) shall be measured on discharges from pipelines, flowlines, piping, vessels, or tanks which have previously been in service – i.e., those which are not new.

** Benzene, Total BTEX, and Total Lead shall be measured on discharges from pipelines, flowlines, piping, vessels, or tanks which have been used for the storage or transportation of liquid or gaseous petroleum hydrocarbons.

Flow, Total Suspended Solids, Oil & Grease, Total Organic Carbon, Benzene, Total BTEX, Lead, and pH - The effluent limitations and monitoring frequencies for flow, TSS, oil & grease, TOC, Benzene, Total BTEX, and Lead are based on LPDES General Permit for Hydrostatic Test Water Discharges (LAG670000), effective February 1, 2003, modified on March 1, 2003 and September 1, 2005.

Additives such as corrosive inhibitors, bactericides, and dyes may not be added to test water to be discharged without prior written approval from this Office. Written requests for approval must include toxicity data for each additive proposed for use, as well as a clear description of the proposed discharge including projected volumes of wastewaters and additive levels in the wastewaters.

Outfall 007

1. General Comments

According to the application, this outfall discharges low contamination potential stormwater runoff. This outfall drains an area of approximately 4.28 acres of which only 0.39 acres are impervious. This area houses the LPG tanks and spheres. All discharges through this outfall are controlled through a gate valve from the tank area. All discharges are monitored for pollution composition before the valve is opened.

2. Effluent Limitations, Monitoring Frequencies, and Sample Types

EFFLUENT CHARACTERISTIC	LIMITATION Units (Specify)		MONITORING REQUIREMENTS	
	MONTHLY AVERAGE	DAILY MAXIMUM	MEASUREMENT FREQUENCY*	SAMPLE TYPE
Flow (MGD)	Report	Report	1/quarter	Estimate
TOC	---	50 mg/L	1/quarter	Grab
Oil & Grease	---	15 mg/L	1/quarter	Grab
pH - Allowable Range (standard units)	6.0 Minimum	9.0 Maximum	1/quarter	Grab

* When discharging

Flow - The flow requirements for reporting the monthly average flow and daily maximum flow are retained from the current LPDES permit. This requirement is consistent with LAC 33:IX.2707.1.1.b/40 CFR 122.44(l)(1)(ii). The monitoring frequency is once per quarter by estimating using best engineering judgement, when discharging.

Total Organic Carbon - The daily maximum discharge limit of 50 mg/L for total organic carbon is retained from the current LPDES permit. The limitation is based on Best Professional Judgement (BPJ) in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter, when discharging, by grab sample.

Oil and Grease - The daily maximum discharge limit of 15 mg/l for oil and grease is retained from the current LPDES permit. The limitation is based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

pH - The minimum discharge limit of 6.0 standard units and a maximum discharge limit of 9.0 standard units for pH are retained from the previous permit. The limitations are based on BPJ in accordance with this Office's guidance on stormwater, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6). Monitoring frequency remains at once per quarter by grab sample, when discharging.

Part II Specific Conditions

PERMIT REOPENER CLAUSE

In accordance with LAC 33:IX.2903, this permit may be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitations issued or approved under sections 301(b)(2)(c) and (D); 304(b)(2); and 307(a)(2) of the Clean Water Act, if the effluent standard or limitations so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit; or
3. Require reassessment due to change in 303(d) status of waterbody; or
4. Incorporates the results of any total maximum daily load allocation, which may be approved for the receiving water body.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENT

In accordance with LAC 33:IX.2707.I.3 and 4 [40 CFR 122.44(I)(3) and (4)], a Part II condition is proposed for applicability to all stormwater discharges from the facility, either through permitted outfalls or through outfalls which are not listed in the permit or as sheet flow. The Part II condition requires a Storm Water Pollution Prevention Plan (SWP3) within six (6) months of the effective date of the final permit, along with other requirements. If the permittee maintains other plans that contain duplicative information, that plan could be incorporated by reference into the SWP3. Examples of these type plans include, but are not limited to: Spill Prevention Control and Countermeasure Plan (SPCC), Best Management Plan (BMP), Response Plans, etc. The conditions will be found in the draft permit. Including Best Management Practice (BMP) controls in the form of a SWP3 is consistent with other LPDES and EPA permits regulating similar discharges of storm water associated with industrial activity, as defined at LAC 33:IX.2511.B.14 [(40 CFR 122.26(b)(14))].

9. COMPLIANCE HISTORY/COMMENTS

- A. A review of LDEQ records from the time period of January 2004, through December 2005 was conducted and revealed that Consolidated Compliance Order & Notice of Potential Penalty MM-CN-03-0114 was issued to Placid Refining Company on June 11, 2004 and was amended on January 10, 2006.
- B. The most recent inspection was conducted on November 3, 2005. No issues of concern were noted.
- C. A DMR review was completed for the period of January 2004 through December 2005. The following violations/excursions were noted.

<u>Date</u>	<u>Outfall</u>	<u>Parameter</u>	<u>Permit Limit</u>	<u>Reported Value</u>
2/28/05	002	TOC	50 mg/L	55.4 mg/L
2/28/05	002	Oil & Grease	15 mg/L	19.3 mg/L
5/31/05	001	TSS	577 lbs/day	714.8 lbs/day

10. WATER QUALITY CONSIDERATIONS

Mississippi River, Subsegment 070301

The discharges from Outfalls 001 of this facility consist of treated process wastewater, treated process area stormwater, treated sanitary wastewater, treated utility wastewaters (including, but not limited to boiler blowdown, cooling tower blowdown, boiler steam, and laboratory and terminal wastewaters), and tank draw water from a subsidiary terminal are to the Mississippi River of the Mississippi River Basin, Segment No. 070301. Louisiana's Final 2004 Section 303(d) List of Impaired Waterbodies Requiring a TMDL (2004 List) revealed that the Mississippi River Basin, Segment No. 070301 does not have any listed impairments on the 303(d) list and is in compliance with water quality standards.

Intracoastal Waterway, Subsegment 120109

The discharges from Outfalls 002, 003, 004, 005, 006, and 007 consist of low contamination potential stormwater and hydrostatic test water are to a highway ditch; thence to the Intracoastal Waterway of the Terrebonne Basin; Segment 120109. Louisiana's Final 2004 Section 303(d) List of Impaired Waterbodies Requiring a TMDL (2004 List) revealed that the Terrebonne Basin, Segment 120109 is listed on the 303(d) list as being impaired with nutrients, organic enrichment/low DO, and pathogen indicators.

The discharges from Outfalls 002, 003, 004, 005, 006, and 007 are not suspected to cause or contribute to the organic enrichment/low DO impairments of the Intracoastal Waterway since the discharge is intermittent in nature. However, to protect against instances where the water may come into contact with organic enrichment/low DO substances, effluent limitations for TOC have been established in the permit.

The discharges from Outfalls 002, 003, 004, 005, 006, and 007 are not suspected to cause or contribute to nutrients or pathogen indicators; therefore, there has not been any effluent limitations established in this draft permit for nutrients or pathogen indicators.

11. ENDANGERED SPECIES

The receiving waterbodies, Subsegment 070301 and 120109 of the Mississippi River Basin and Terrebonne Basin, are not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated October 21, 2005, from Watson (FWS) to Gautreaux (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. It was determined that the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat.

12. HISTORIC SITES

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

13. TENTATIVE DETERMINATION

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to issue a permit for discharges described in the application.

14. PUBLIC NOTICES

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the proposed issuance of LPDES individual permits and may request a public hearing to clarify issues involved. This Office's address is on the first page of the statement of basis. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

A local newspaper of general circulation and
The Office of Environmental Services Public Notice Mailing List.

Appendix A

LA0039390, A12366 Appendix A-1 Page 1
Calculation of Technology Based Limits for Placid Refining Company LLC
Out. 001
Refinery Guidelines, 40 CFR 419, Existing Source Only

TABLE 1

Spreadsheet: refinery.wk4
Developer: Bruce Fielding
Software: Lotus 4.0
Revision date: 09/07/00
Calculation Date: 03/14

DATA INPUT:

(*1)		(*6)	
FACILITY INFORMATION		ANTI-BACKSLIDING INFORMATION:	
Permittee:	Placid Refining Company LLC	(*A)	(*B) (*C)
Permit Number:	LA0039390, A12366	Tech Old Tech Old Antiback	
Appendix:	Appendix A-1	Avg	Max0=no scr.
Concentration flow, (MGD):		lb/day	lb/day1=OldvsGL
Anti-backsliding, GL vs Old, 0=n, 1=y, 2=GL+Old	0		2=Old+GL
Outfall number:	Out. 001	Conventional:	
40 CFR 419 Subpart, (A, B, C, D, or E):	B	BOD5 ---	
Refinery Type:		TSS ---	
(Topping, Cracking, Petrochemical, Lube, or Integrated)	Cracking	Oil and Grease ---	
(*2)		Nonconventional:	
THROUGHPUT RATES		COD ---	
	K bbl/day	TOC ---	
		Ammonia ---	
Feedstock (Crude Oil and NGL) Rate to Topping Unit(s):	50	Sulfide ---	
Process Unit Rates:	Input in Table 2	Total Phenolics ---	
(*3)		Metals:	
FLOW RATES	X gal/day gpm	Chromium (Total) ---	
		Chromium (6+) ---	
Ballast Flow:	---		
Stormwater Calculations		(*7)	
Process area, sq. ft. (or acres):	---	Conversion Utilities:	
Number of Days (Default is 365):	365	mg/L-->lbs/day	8.34
	inches % runoff	gpm-->MGD	0.00144
Annual rainfall, inches:		gpm-->K gal/day	1.44
		ft3-->gal	7.480519
	K gal/day	inches-->feet	0.083333
Contaminated Stormwater to Treatment System	111	acres-->sq. ft.	43560
(*4)			
RATIOS:	Ratio:		
TOC:BOD5 (Default is 2.2, if needed):			
(*5)		Fraction:	
Discharge fraction, default =1	1		

Calculation of Technology Based Limits for Placid Refining Company LLC

Out. 001

Calculation of Unit Process Rates and Unit Configuration Factors

TABLE 2

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)
			Unit Process Rate			
		Unit	to		Unit	
	EPA	Process	Total	Feedstock	Process	Process
	Process	Rate	Feedstock	Rate	Weighting	Config.
	Number	K bbl/day	Rate	Ratio *	Factor =	Factor
CRUDE PROCESSES:						
Atmospheric Crude Distillation	1	50	50	1	1	1
Crude Desalting	2	50	50	1	1	1
Vacuum Crude Distillation	3	25	50	0.5	1	0.5
TOTAL CRUDE PROCESSES FEEDSTOCK RATE=		125				
CRACKING AND COKING PROCESSES:						
Visbreaking	4	0	50	0	6	0
Thermal Cracking	5	0	50	0	6	0
Fluid Catalytic Cracking	6	20	50	0.4	6	2.4
Moving Bed Catalytic Cracking	7	0	50	0	6	0
Hydrocracking	10	0	50	0	6	0
Delayed Coking	15	0	50	0	6	0
Fluid Coking	16	0	50	0	6	0
Hydrotreating	54	0	Not Applicable to Refinery Process Config. Factor			
TOTAL CRACKING AND COKING PROCESSES FEEDSTOCK RATE=		20				
LUBE PROCESSES:						
Hydrofining, Hydrofinishing, Lube Hydrofinishing	21	0	50	0	13	0
White Oil Manufacture	22	0	50	0	13	0
Propane: Dewaxing, Deasphalting, Fractioning, Deresining	23	0	50	0	13	0
Duo Sol, Solvent Treating, Solvent Extraction, Duotreating, Solvent Dewaxing, Solvent Deasphalt	24	0	50	0	13	0
Lube Vacuum Tower, Oil Fractionation, Batch Still (Naphtha Strip), Bright Stock Treating	25	0	50	0	13	0
Centrifuge and Chilling	26	0	50	0	13	0
Dewaxing: MEK, Ketone, MEK-Toluene	27	0	50	0	13	0
Deoiling (Wax)	28	0	50	0	13	0
Naphthenic Lube Production	29	0	50	0	13	0
SO2 Extraction	30	0	50	0	13	0
Wax Pressing	34	0	50	0	13	0
Wax Plant (with Neutral Separation)	35	0	50	0	13	0
Furfural Extracting	36	0	50	0	13	0
Clay Contacting - Percolation	37	0	50	0	13	0
Wax Sweating	38	0	50	0	13	0
Acid Treating	39	0	50	0	13	0
Phenol Extraction	40	0	50	0	13	0
TOTAL LUBE PROCESS FEEDSTOCK RATE=		0				

Calculation of Technology Based Limits for Placid Refining Company LLC

Out. 001

Calculation of Unit Process Rates, Unit Configuration, Process and Size Factors

TABLE 2 (continued)

(*1)	(*2)	(*3)	Unit Process Rate			(*7)
			Unit EPA Process Process Number	to Total Feedstock Feedstock Rate	Unit Process Weighting Factor =	
ASPHALT PROCESSES:						
Asphalt Production	16	0	50	0	12	0
200 Deg. F Softening Point Unfluxed Asphalt	32	0	Not Applicable to Refinery Process Config. Factor			
Asphalt Oxidizing	43	0	50	0	12	0
Asphalt Emulsifying	89	0	50	0	12	0
TOTAL ASPHALT PROCESS FEEDSTOCK RATE=		0				
REFORMING AND ALKYLATION PROCESSES:						
H2SO4 Alkylation	8	0	Not Applicable to Refinery Process Config. Factor			
Catalytic Reforming	12	8.5	Not Applicable to Refinery Process Config. Factor			
TOTAL REFORMING AND ALKYLATION PROCESS FEEDSTOCK RATE=		8.5				
TOTAL REFINERY PROCESS CONFIGURATION FACTOR=					4.9	

TABLE 3

PROCESS FACTORS BY SUBPART

Total Refinery Process Configuration	Cracking Subpart
	B
< 2.49	0.58
2.5 to 3.49	0.63
3.5 to 4.49	0.74
4.5 to 5.49	0.88
5.5 to 5.99	1
6.0 to 6.49	1.09
6.5 to 6.99	1.19
7.0 to 7.49	1.29
7.5 to 7.99	1.41
8.0 to 8.49	1.53
8.5 to 8.99	1.67
9.0 to 9.49	1.82
9.5 to 9.99	1.89
10.0 to 10.49	1.89
10.5 to 10.99	1.89
11.0 to 11.49	1.89
11.5 to 11.99	1.89
12.0 to 12.49	1.89
12.5 to 12.99	1.89
13.0 to 13.49	1.89
13.5 to 13.99	1.89
>=14.00	1.89

TABLE 4

SIZE FACTORS BY SUBPART

K bbl/day Feedstock (Stream Day)	Cracking Subpart
	B
< 24.9	0.91
25.0 to 49.9	0.95
50.0 to 74.9	1.04
75.0 to 99.9	1.13
100.0 to 124.9	1.23
125.0 to 149.9	1.35
150.0 to 174.9	1.41
175.0 to 199.9	1.41
200.0 to 224.9	1.41
>=225.0	1.41
PROCESS FACTOR INPUT:	
Refinery Configuration =	4.9
SIZE FACTOR INPUT:	
Feedstock, K bbl/day =	50
FACTOR REFERENCE	
PROCESS FACTOR =	0.88 419.23(b)
SIZE FACTOR =	1.04 419.23(b)

TABLE 5

PROCESS GROUP FEEDSTOCK RATES:

Process Group:	Feedstock Rate, K bbl/day:
Crude=	125
Cracking and Coking=	20
Lube=	0
Asphalt=	0
Reforming and Alkylation=	8.5

Multiplier = Feedstock * Process Factor * Size Factor

Multiplier = 45.76

[illegible]

Calculation of Technology Based Limits for Placid Refining Company LLC

Out. 001

Conventional, nonconventional, and toxic refinery pollutant loading calculations

TABLE 6 (continued)

40 CFR 419, Petroleum and Refining Guidelines

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)
			Cracking	Cracking		Discharge	Cracking	Cracking
			Subpart	Subpart		Fraction	Subpart	Subpart
STORMWATER	Subpart B		B	B		Through	B	B
	Category: Treatm	l	lb/K gal	lb/K gal		Flow Outfall	lb/day	lb/day
PARAMETER	Cracking	Tech.	Avg	Max	K gal/day		Avg	Max
Conventional								
BOD5	419.24(e)	BCT	0.22	0.4	111	1	24.42	44.4
TSS	419.24(e)	BCT	0.18	0.28	111	1	19.98	31.08
Oil and Grease	419.24(e)	BCT	0.067	0.13	111	1	7.437	14.43
Nonconventional								
COD	419.23(f)	BAT	1.5	3	111	1	166.5	333
TOC	---	---	---	---	111	1	---	---
Total Phenolics	419.23(f)	BAT	0.0014	0.0029	111	1	0.1554	0.3219
Metals								
Chromium (Total)	419.23(f)	BAT	0.0018	0.005	111	1	0.1998	0.555
Chromium (6+)	419.23(f)	BAT	0.00023	0.00052	111	1	0.02553	0.05772

TABLE 7

TOTAL ALLOCATIONS = Process WW + Ballast Water + Contaminated SW (lbs/day)

	PROCESS WASTEWATER		BALLAST		STORMWATER		TOTAL ALLOCATION	
	(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*9)
	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking	Cracking
	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart	Subpart
	B	B	B	B	B	B	B	B
PARAMETER	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day	lb/day
	Avg	Max	Avg	Max	Avg	Max	Avg	Max
Conventional								
BOD5	251.68	453.024	---	---	24.42	44.4	276.1	497.424
TSS	201.344	315.744	---	---	19.98	31.08	221.324	346.824
Oil and Grease	73.216	137.28	---	---	7.437	14.43	80.653	151.71
Nonconventional								
COD	1757.184	3386.24	---	---	166.5	333	1923.684	3719.24
TOC	---	---	---	---	---	---	---	---
Ammonia	137.28	302.016	---	---	---	---	137.28	302.016
Sulfide	1.32704	2.9744	---	---	---	---	1.32704	2.9744
Total Phenolics	1.367	3.38624	---	---	0.1554	0.3219	1.5224	3.70814
Metals								
Chromium (Total)	1.6345	4.6645	---	---	0.1998	0.555	1.8343	5.2195
Chromium (6+)	0.13185	0.29815	---	---	0.02553	0.05772	0.15738	0.35587

Calculation of Technology Based Limits for Placid Refining Company LLC

Out. 001

Anti-Backsliding Screening

TABLE 6

Anti-Backsliding Calculations, 40 CPR 122.44(i)(1), LAC 33.IX.2361.L

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)
	G/L Val	G/L Val	Tech Old	Tech Old	Antiback	Out. 001	Out. 001	Out. 001	Out. 001
	Avg	Max	Avg	Max	0=no scr.	Avg	Max	Avg	Max
	lb/day	lb/day	lb/day	lb/day	1=OldvsGL	lb/day	lb/day	mg/L	mg/L
PARAMETER					2=Old+GL				
Conventional:									
BOD5	276.1	497.424			---	276	497	---	---
TSS	221.324	346.824			---	221	347	---	---
Oil and Grease	80.653	151.71			---	81	152	---	---
Nonconventional:									
COD	1923.684	3719.24			---	1924	3719	---	---
TOC	---	---			---	---	---	---	---
Ammonia	137.28	302.016			---	137	302	---	---
Sulfide	1.32704	2.9744			---	1.3	3.0	---	---
Total Phenolics	1.5224	3.70814			---	1.5	3.7	---	---
Metals:									
Chromium (Total)	1.8343	5.2195			---	1.8	5.2	---	---
Chromium (6+)	0.15738	0.35587			---	0.2	0.4	---	---

Documentation and Explanation of Technology Calculations
and Associated Lotus Spreadsheet

This is a technology spreadsheet covering the effluent guidelines for petroleum refining, 40 CFR 419. The refinery guidelines consists of 5 Subparts; Subpart A-Topping, Subpart B-Cracking, Subpart C-Petrochemical, Subpart D-Lube, and Subpart E-Integrated. Treatment technologies consist of Best Available Technology Economically Achievable (BAT), Best Conventional Technology (BCT), and Best Practicable Control Technology Currently Available (BPT). For most effluent guidelines with toxic and non-conventional pollutants, BAT represents the most stringent guideline and the one that is used in most permitting applications. However, in refinery guidelines there are cases where BPT or BCT is sometimes more stringent than BAT and these limitations are applied to the parameter of concern. BCT is used for conventional pollutants. The final calculations are screened against limitations established in a previous permit by BPJ. These limitations are now BAT for that facility and must be screened against the calculated effluent guideline limitations with the most stringent applying in order to address anti-backsliding concerns (40 CFR 122.44.1, LAC 33.IX.2707.L). The term "Daily Average" as it is used in this documentation and in the spreadsheet is assumed to be equivalent to "Monthly Average". The spreadsheet is set up in a table and column/section format. Each table represents a general category for data input or calculation points. Each reference column or section is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*8). These columns or sections represent inputs, existing data sets, calculation points, or results for determining technology based limits for an effluent of concern.

Introductory Notes to Petroleum Refining Effluent Limitations Calculations:

Regulatory Basis

Unless otherwise stated, the technology-based permit effluent limitations presented in this appendix are calculated using national effluent limitations and standards listed at 40 CFR Part 419 - Petroleum Refining Point Source Category. Technical data supporting the national effluent limitations and standards for the Petroleum Refining Point Source Category will be found at the following development documents:

1974 Development Document

Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category, USEPA, EPA-44011-74-014a, April 1974

1982 Development Document

Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Petroleum Refining Point Source Category, USEPA, EPA 440/1-82/014, October 1982

Example Calculations

Example calculations for deriving petroleum refining permit effluent limitations will be found at:

40 CFR
Part 419.42(a)(3)
Part 419.43(c)(2)

Development Documents
1974 Development Document (Section IX, Pages 148-151)
1982 Development Document (Section I, Pages 1-14)

1985 Guidance
Guide for the Application of Effluent Limitations Guidelines for the
Petroleum Refining Industry, USEPA, Industrial Technology Division, June
1985

Discussion of EPA Refining Processes Used in Calculations

	EPA Process Number
<u>Crude Processes</u>	
Atmospheric Crude Distillation	1
Crude Desalting	2
Vacuum Crude Distillation	3
<u>Cracking and Coking Processes</u>	
Visbreaking	4
Thermal Cracking	5
Fluid Catalytic Cracking	6
Moving Bed Catalytic Cracking	7
Hydrocracking	10
Delayed Coking	15
Fluid Coking	16
Hydrotreating*	54
<u>Lube Processes</u>	
Hydrofining, Hydrofinishing, Lube Hydrofinishing	21
White Oil Manufacture	22
Propane: Dewaxing, Deasphalting, Fractioning, Derinsing	23
Duo Sol, Solvent Treating, Solvent Extraction Duotreating, Solvent Dewaxing, Solvent Deasphalt	24
Lube Vacuum Tower, Oil Fractionation, Batch Still (Naphtha Strip), Bright Stock Treating	25
Centrifuge & Chilling	26
Dewaxing: MEK, Ketone, MEK-Toluene	27
Deoiling (Wax)	28
Naphthenic Lube Production	29
SO2 Extraction	30

Wax Pressing	34
Wax Plant (with Neutral Separation)	35
Furfural Extracting	36
Clay Contacting - Percolation	37
Wax Sweating	38
Acid Treating	39
Phenol Extraction	40

Asphalt Processes

Asphalt Production	18
200 Deg. F Softening Point Unfluxed Asphalt*	32
Asphalt Oxidizing	43
Asphalt Emulsifying	89

Reforming and Alkylation Processes

H ₂ SO ₄ Alkylation*	8
Catalytic Reforming*	12

- * These processes are not included in the refinery process configuration factor calculations.

EPA Process Numbers will be found at Appendix A to 40 CFR 419. They can be cross-referenced in Table III-7, pages 49-54 of the 1982 Development Document.

Refining processes used in Table 2 (except as noted) lead to the calculation of all BPT/BCT permit effluent limitations for ammonia (as N), sulfide (as S), and COD only. The Table 2 refining processes are listed at Section IX, Table 51, page 151, of the 1974 Development Document. A detailed discussion of the refining processes used in the refinery process configuration factor (Table 2) is found in the "1974" Flow Model at Section IV, pages 55-62, of the 1974 Development Document and at Section IV, pages 63-65 of the 1982 Development Document. Also see "Process Groupings Included in 1974 Flow Model" at page 19 of the 1985 Guidance. Because certain petroleum refining processes [Hydrotreating; 200 Deg. F Softening Point Unfluxed Asphalt; H₂SO₄ Alkylation; and Catalytic Reforming] were not included in the 1974 flow model, they are not included as a process in the refinery process configuration factor calculations (Table 2). In 1976, the U.S. Court of Appeals upheld the 1974 BPT and NSPS regulations [see discussion at Section IV, pages 61-62, of the 1982 Development Document]. Refining processes not included in the 1974 Flow Model [the basis for all BPT/BCT permit effluent limitations and BAT permit effluent limitations for ammonia (as N), sulfide (as S), and COD only] are not considered in the refinery process configuration factor calculations (Table 2).

Refining processes and categories used in Tables 2 and 5 lead to the calculation of amended BAT permit effluent limitations for total recoverable phenolics, chromium (total), and chromium (6+). These refining processes are listed at Appendix A to 40 CFR Part 419. A detailed discussion of the refining processes used in BAT permit effluent limit calculations will be found in the discussion of the Refined Flow Model at Section IV, pages 67-68,

of the 1982 Development Document. Also see "Process Groupings Included in 1979 Flow Model" at page 20 of the 1985 Guidance. Refining processes not included in the 1979 Flow Model [the basis for Appendix A to 40 CFR Part 419] are not considered in BAT permit effluent limitations for total recoverable phenolics, chromium (total), and chromium (6+).

Organizations or individuals desiring the inclusion of other refining processes in the previously mentioned calculations should petition the U.S. Environmental Protection Agency under the Administrative Procedures Act, 5-U.S.C. Sec. 553(e), which authorizes interested parties to petition the issuance, amendment, or repeal of a rule.

Table 1

Table 1 is a data input area.

(*1) Facility Information

Generalized input information for the facility:

Permittee- Permittee name.

Permit Number- LPDES permit number.

Concentration flow, (MGD)- If concentration limits are desired, then a flow for determining concentration limits is placed here.

Anti-backsliding, GL vs Old, 0=n, 1=y, 2=GL+Old: This switch establishes how previously established Best Professional Judgement (BPJ) permit limits will be screened. "0" indicates that no screening will occur. "1" indicates that the BPJ-Technology permit limits will be screened. "2" indicates that the guideline values will be added to the previously established BPJ-Technology limitations. This is only used when significant increases in production have occurred since the last permit was issued. Guideline values are calculated only on the basis of the increase.

Outfall number: Generally written as an abbreviation, e.g., "Out. 001".

40 CFR 419 Subpart, (A, B, C, D, or E): The subpart that the spreadsheet uses is specified by putting the designated subpart letter in the indicated cell. Input can be in either lower case or upper case.

Refinery type: The spreadsheet automatically specifies the refinery type, Topping, Cracking, Petrochemical, Lube, or Integrated based on the subpart specified.

(*2) Throughput Rates

Feedstock (Crude Oil and NGL) Rate to Topping Unit(s): As defined in the guidelines, the term "feedstock" shall mean the crude oil and natural gas liquids (NGL) fed to the topping unit(s).

Process Unit Rates: These values are input in Table 2 on the row indicating the specific process under the column labeled, "Unit Process Rate K bbl/day."

(*3) Flow Rates

Ballast Flow, K gal/day: As defined in the guidelines, "ballast" shall mean the flow of waters, from a ship, that is treated along with refinery wastewaters in the main treatment system. Units as specified.

Stormwater Calculations: The refinery effluent guidelines give an allowance for contaminated runoff. This is calculated using an areal estimate of the process area in either square feet or acres and an annual rainfall estimate in inches.

Process area, sq. ft. (or acres): The process area size is specified in the cell with the appropriate units.

Annual rainfall, inches: Estimate of annual rainfall as specified.

Contaminated stormwater to Treatment System: Input here is optional. This is the calculated value utilizing the process area size and amount of rainfall specified above or a precalculated value (from DMR's or other sources) submitted by the applicant. If you are utilizing a precalculated value, then inputs in the Process area, sq. ft. (or acres): or Annual rainfall, inches: fields are not necessary.

(*4) TOC:BOD5. TOC to BOD5 Ratio. A TOC to BOD5 ratio of 2.2 to 1 is established on a BPJ basis consistent with EPA Region 6 and the refinery effluent guidelines. COD:BOD5 1=y default G/L calculated values for san. This field is used and will appear only when a sanitary allocation to process wastewaters is being calculated. A "1" placed in this field will take the default COD:BOD5 ratio calculated from the total loadings of COD and BOD5 from the refinery guidelines.

(*5) Discharge fraction, default =1: If the process wastewater is not discharged at 100% through the regulated outfall, then the fraction that is discharged through the regulated outfall is placed here. Examples where a facility may split a process flow include, deep well injection, POTW's, other facilities, etc. This is in accordance with 40 CFR 122.50/LAC 33:IX.2717.

(*6) Sanitary Flow, MGD: On rare occasions sanitary wastewaters are given a flow allocation in MGD. This allocation will be given only to facilities that currently have significant sanitary wastewaters included in their process wastewater BOD5 and TSS allocations. "Significant", in

this case, is defined when the sanitary wastewaters contribute 5% or more of the total BOD5 or TSS loading of the wastewater treatment system. This allocation will not be given to facilities that have not received this allocation before or facilities adding additional sanitary wastewaters to their process wastewater treatment systems in accordance with anti-backsliding regulations (40 CFR 122.44.1, LAC 33.IX.2707.L). This section will not appear if sanitary wastewater is not granted an allocation.

(*6), (*7) Anti-backsliding Information:

The previous permit limitations established by BPJ (now BAT) are put under the appropriate column (*A) "Avg" for daily maximum 30-day average, and (*B) "Max" for daily maximum on the row with the specified parameter. Column (*C) utilizes the same switches described in section (*1) under the discussion on anti-backsliding. The only difference here is that the switch can be specified on a parameter specific basis. If sanitary wastewater is granted an allocation, this will become section (*7), otherwise it will remain section (*6).

(*7), (*8) Conversion Utilities:

This section contains useful conversions for calculations throughout the spreadsheet. A section is dedicated to calculating COD:BOD5 ratios or inputting COD concentrations in mg/L for the exclusive purpose of calculating COD loadings attributed to sanitary wastewater. As stated above under section (*4), default COD:BOD5 ratios are calculated by dividing total guideline COD loading by total guideline BOD5 loading. The use of a more stringent ratio or concentration in a previously issued permit would preclude using the default calculation procedure. All fields containing information about COD ratios or concentrations will not appear if sanitary wastewaters are not granted an allocation for BOD5. If sanitary wastewater is granted an allocation, this will become section (*8), otherwise it will remain section (*7).

Table 2

Table 2 calculates the total refinery process configuration factor by summing all contributing unit process configuration factors (except processes noted).

- (*1) Specifies refinery processes under 5 different categories, crude processes, cracking and coking processes, lube processes, asphalt processes, and reforming and alkylation processes. Footnoted processes are not included in the total refinery process configuration factor.
- (*2) EPA process number. From Table III-7, Pages 49-54, Final Development Document for Effluent Limitations Guidelines and Standards for the Petroleum Refining Point Source Category, EPA 440/1-82/014, October, 1982.

- (*3) Unit Process Rate, K bbl/day. Process rate is placed on the row with the specified process. Unit process rates are summed for each process group for use in determining BAT limitations for Total Chromium, Chromium (6+), and Total Recoverable Phenolics in Table 6.
- (*4) Total Feedstock Rate, K bbl/day. This column contains the value specified in section (*2) of Table 1.
- (*5) Unit Process Rate to Feedstock Rate Ratio. The unit process rate is divided by the feedstock rate specified in column (*4).
- (*6) Weighting factor. The spreadsheet uses the weighting factors specified at 40 CFR 419.42(b)(3), Subpart D.
- (*7) Unit process configuration factor. The product in this column is the result of multiplying the "Unit Process Rate to Feedstock Rate Ratio" in column (*5) times the weighting factor specified in column (*6). These values are summed to obtain the total refinery process configuration factor.

Tables 3 and 4

Tables 3 and 4 calculate the process and size factors respectively. The input for determining the appropriate process factor is the total refinery process configuration factor. The input for determining the appropriate size factor is the feedstock in K bbl/day. The multiplier used in determining mass loadings for certain parameters specified in Table 6 is determined by multiplying the feedstock times the process factor times the size factor.

Table 5

Table 5 summarizes the process group feedstock rates (crude, cracking and coking, lube, asphalt, reforming and alkylation) specified in Table 2 for use in calculating BAT limitations for Total Recoverable Phenolics (specified as Total Phenolics), Total Chromium, and Chromium (6+) in Table 6.

Table 6

Table 6 is where mass loadings are calculated for each parameter under each applicable wastewater type; process, ballast, stormwater (contaminated) and sanitary wastewaters, when applicable. For Total Recoverable Phenolics (specified as Total Phenolics), Total Chromium, and Chromium (6+), mass loadings are calculated twice under the process wastewater section, once with BPT factors and once with BAT factors with the most stringent applying.

- (*1) Parameter.
- (*2) References. 40 CFR reference applicable to the specified factors and subparts in columns (*4) and (*5).

- (*3) Treatmt. Tech. Applicable treatment technology, BPT, BCT, or BPT, for the parameter and factors specified. BPJ is applied to sanitary wastewaters, when sanitary wastewater is granted an allocation.
- (*4) Factor, Avg. Daily average (daily maximum 30-day average) factors specified in the guidelines. Sanitary wastewater would be granted a flow based allocation of 30 mg/L for BOD₅ and TSS, when applicable.
- (*5) Factor, Max. Daily maximum factors specified in the guidelines. Sanitary wastewater would be granted a flow based allocation of 45 mg/L for BOD₅ and TSS, when applicable.
- (*6) Multiplier/Table 2 Group Feedstock Rate, K bbl/day/Flow K gal/day. For the process wastewater, this column contains the multiplier calculated under Tables 3 and 4 or the applicable group feedstock rate from Table 2 in 1000 barrels per day (K bbl/day). For ballast, sanitary (when applicable), and stormwater, flow in 1000 gallons per day (except sanitary in MGD) from the data input table, Table 1.
- (*7) Discharge fraction through outfall. This column contains the factor calculated in section (*5) of Table 1.
- (*8) Daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*9) Daily maximum loadings in lbs per day for the specified parameter under the specified subpart.

Table 7

Table 7 is a data summary table totaling the allocations from process wastewater, ballast water, contaminated stormwater, and sanitary wastewater (when applicable). The total values represent the refinery effluent guideline limitations.

- (*1) Process wastewater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*2) Process wastewater daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*3) Ballast water daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.
- (*4) Ballast water daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*5) Contaminated stormwater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart.

- (*6) Contaminated stormwater daily maximum loadings in lbs per day for the specified parameter under the specified subpart.
- (*7) Sanitary wastewater daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter. This column will not appear if sanitary wastewater is not granted an allocation.
- (*8) Sanitary wastewater daily maximum loadings in lbs per day for the specified parameter. This column will not appear if sanitary wastewater is not granted an allocation.
- (*7, *9) Total daily average (daily maximum 30-day average) loadings in lbs per day for the specified parameter under the specified subpart. If sanitary wastewater is granted an allocation, this will become column (*9), otherwise it will remain column (*7).
- (*8, *10) Total daily maximum loadings in lbs per day for the specified parameter under the specified subpart. If sanitary wastewater is granted an allocation, this will become column (*10), otherwise it will remain column (*7).

Table 8

Table 8 is utilized when anti-backsliding (40 CFR 122.44.1, LAC 33.IX.2707.L) concerns are present. The effluent limitation guideline values are screened against BPJ-Technology values from the previous permit with the most stringent applying.

- (*1) Parameter.
- (*2) Daily average effluent limitation guideline in lbs/day from column (*7) in Table 7.
- (*3) Daily maximum effluent limitation guideline in lbs/day from column (*8) Table 7.
- (*4) Daily Average Tech Old in lbs/day. This column is utilized when an anti-backsliding concern (40 CFR 122.44.1, LAC 33.IX.2707.L) is present. This would be indicated by substantially higher limits ($\approx 30\%$ or greater) calculated under guidelines than those previously established in the old permit on a BPJ basis. If the previously issued permit (as applicable) contains limits for the parameter of concern and an anti-backsliding concern is present, the limits from the previously issued permit are placed in this column in lbs/day.
- (*5) Daily Maximum Tech Old in lbs/day. Similar to (*7).
- (*6) Antiback, 0=no scr., 1=OldvsGL, 2=Old+GL. Anti-Backsliding screening switch. The default is set not to screen. This can be changed under

section (*1) in the data input page. If a screen is conducted, a "1" will appear in this column. The more stringent permit limits will appear in columns (*7) and (*8). If the screen indicates that the previously issued permit limit utilizing BPJ-Technology is more stringent and an increase in production has occurred, the technology based limits can be recalculated using guidelines for the increase only. This will be indicated by a "2" in this column. The recalculated guideline limitations in columns (*2) and (*3) are subsequently added to the values in columns (*4) and (*5) yielding technology-based effluent limitations in columns (*7) and (*8). The values in this column can be changed on a row-by-row basis for site-specific screening situations.

- (*7) Daily Average technology based effluent limit in lbs/day. If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*2). When anti-backsliding screening is used, see discussion for column (*6).
- (*8) Daily Maximum technology based effluent limit in lbs/day. If no anti-backsliding screening is conducted then the value in this column will be equal to the value in column (*3). When anti-backsliding screening is used, see discussion for column (*6).
- (*9) Daily Average technology based effluent limit in mg/L. A concentration limit can be calculated using the specified concentration flow from section (*1) under the data input table and the mass limitation calculated under column (*7). The formula is as follows:
- $$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} \times 8.34}$$
- (*10) Daily Maximum technology based effluent limit in mg/L. Similar to column (*9), a concentration limit can be calculated using the specified concentration flow from section (*1) under the data input table and the mass limitation calculated under column (*8). The formula is as follows:

$$\frac{\text{effluent limit, lbs/day}}{\text{flow, MGD} \times 8.34}$$

Developer: Bruce Fielding Time: 08:00 AM

Software: Lotus 4.0

LA0039390, A12366

Revision date: 02/14/05

Water Quality Screen for Placid Refining Company LLC

Input variables:

Receiving Water Characteristics:

Receiving Water Name= Mississippi River, Segment 070301

Critical flow (Qr) cfs= 141955

Harm. mean/avg tidal cfs= 366748

Drinking Water=1 HHNPCR=2 1

Marine, 1=y, 0=n

Rec. Water Hardness= 154

Rec. Water TSS= 50.8

Fisch/Specific=1,Stream=0

Diffuser Ratio=

Effluent Characteristics:

Permittee= Placid Refining Company LLC

Permit Number= LA0039390, A12366

Facility flow (Qef),MGD= 0.844

Outfall Number = 001

Eff. data, 2=lbs/day 2

MQL, 2=lbs/day 1

Effluent Hardness= N/A

Effluent TSS= N/A

WQBL ind. 0=y, 1=n

Acute/Chr. ratio 0=n, 1=y 1

Aquatic,acute only1=y,0=n

Page Numbering/Labeling

Appendix Appendix B-1

Page Numbers 1=y, 0=n 1

Input Page # 1=y, 0=n 1

Fischer/Site Specific inputs:

Pipe=1,Canal=2,Specific=3

Pipe width, feet

ZID plume dist., feet

M2 plume dist., feet

HHnc plume dist., feet

HHc plume dist., feet

Fischer/site specific dilutions:

F/specific ZID Dilution = ---

F/specific M2 Dilution = ---

F/specific HHnc Dilution= ---

F/specific HHc Dilution= ---

Dilution:

ZID Fs = 0.033333

M2 Fs = 0.333333

Critical Qr (MGD)=91745.52

Harm. Mean (MGD)= 237029.2

ZID Dilution = 0.000276

M2 Dilution = 0.000286

HHnc Dilution= 0.000009

HHc Dilution= 0.000004

ZID Upstream = 3623.441

M2 Upstream = 36234.41

M2hhnc Upstream= 108703.2

M2hhnc Upstream= 280840.3

ZID Hardness= ---

M2 Hardness= ---

ZID TSS= ---

M2 TSS= ---

Multipliers:

WLAA --> LTAA 0.32

WLAC --> LTAC 0.53

LTA a,c-->WQBL avg 1.31

LTA a,c-->WQBL max 3.11

LTA h --> WQBL max 2.38

WQBL-limit/report 2.13

WLA Fraction 1

WQBL Fraction 1

Conversions:

ug/L-->lbs/day Qef0.007039

ug/L-->lbs/day Qeo 0

ug/L-->lbs/day Qr 1183.905

lbs/day-->ug/L Qeo142.0664

lbs/day-->ug/L Qef142.0664

diss-->tot 1=y0=n 1

Cu diss-->tot1=y0=n 1

cfs-->MGD 0.6463

Receiving Stream:

Default Hardness= 25

Default TSS= 10

99 Crit., 1=y, 0=n 1

Toxicity Dilution Series:

Biomonitoring dilution: 0.000276

Dilution Series Factor: 0.75

Percent Effluent

Dilution No. 1 0.037%

Dilution No. 2 0.0276%

Dilution No. 3 0.0207%

Dilution No. 4 0.0155%

Dilution No. 5 0.0116%

Partition Coefficients: Dissolved-->Total

METALS FW

Total Arsenic 2.386195

Total Cadmium 3.400478

Chromium III 5.423334

Chromium VI 1

Total Copper 1.887739

Total Lead 7.142296

Total Mercury 2.673313

Total Nickel 3.652879

Total Zinc 5.061338

Aquatic Life, Dissolved

Metal Criteria, ug/L

METALS ACUTE CHRONIC

Arsenic 339.8 150

Cadmium 50.77136 1.418404

Chromium III 781.5281 253.5196

Chromium VI 15.712 10.582

Copper 27.67681 17.76542

Lead 102.9974 4.013662

Mercury 1.734 0.012

Nickel 2039.5 226.5028

Zinc 165.0031 150.6729

Site Specific Multiplier Values:

CV = ---

N = ---

WLAA --> LTAA ---

WLAC --> LTAC ---

LTA a,c-->WQBL avg ---

LTA a,c-->WQBL max ---

LTA h --> WQBL max ---

Appendix B

Placid Refining Company LLC

LA0019390, A12366

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Toxic Parameters	Conc.	/Tech (Avg)	/Tech (Max)	MOLEffluent ug/L	95th % estimate	Non-Tech lbs/day	Acute FW ug/L	Chronic FW ug/L	HHDW ug/L	Carcinogen Indicator "C"
	ug/L	lbs/day	lbs/day	ug/L		lbs/day	ug/L	ug/L	ug/L	
NONCONVENTIONAL										
Total Phenols (4AAP)		1.5224	3.70814	5	1		700	350	5	
3-Chlorophenol				10					0.1	
4-Chlorophenol				10			383	192	0.1	
2,3-Dichlorophenol				10					0.04	
2,5-Dichlorophenol				10					0.5	
2,6-Dichlorophenol				10					0.2	
3,4-Dichlorophenol				10					0.3	
2,4-Dichlorophenoxy-acetic acid (2,4-D)				---					100	
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, Silvex)				---					10	
METALS AND CYANIDE										
Total Arsenic				10			810.6292	357.9293	119.3098	
Total Cadmium		0.014		1	0	0.02982	172.6469	4.823252	34.00478	
Chromium III				10			4238.488	1374.922	271.1667	
Chromium VI		0.15738	0.35587	10	1		15.712	10.582	50	C
Total Copper				10			107.6002	69.06732	3887.739	
Total Lead				5			735.6381	28.66676	357.1148	
Total Mercury		0.002		0.2	0	0.00426	4.635524	0.03208	5.346625	
Total Nickel				40			7450.047	827.3874		
Total Zinc				20			835.1365	762.6063	25306.69	
Total Cyanide		0.18		20	0	0.3834	45.9	5.2	663.8	
DIOXIN										
2,3,7,8 TCDD; dioxin				1.0E-005					7.1E-007	C
VOLATILE COMPOUNDS										
Benzene				10			2249	1125	1.1	C
Bromoform				10			2930	1465	3.9	C
Bromodichloromethane				10					0.2	C
Carbon Tetrachloride				10			2730	1365	0.22	C
Chloroform				10			2890	1445	5.3	C
Dibromochloromethane				10					0.39	C
1,2-Dichloroethane				10			11800	5900	0.36	C
1,1-Dichloroethylene				10			1160	580	0.05	C
1,3-Dichloropropylene				10			606	303	9.86	
Ethylbenzene				10			3200	1600	2390	
Methyl Chloride				50			55000	27500		
Methylene Chloride				20			19300	9650	4.4	C
1,1,2,2-Tetrachloroethane				10			932	466	0.16	C

Placid Refining Company LLC

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	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic Parameters	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting A,C,HH	WQBL Avg	WQBL Max	WQBL Avg	WQBL Max	WQBL Need
	Acute	Chronic	HHDW	Acute	Chronic	HHDW		001	001	001	001	
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
NONCONVENTIONAL												
Total Phenols (AAP)	2537108	1.3E+007	543521.1	811874.7	6721668	543521.1	543521.1	543521.1	1293580	3825.823	9105.459	no
1-Chlorophenol	---	---	10870.42	---	---	10870.42	10870.42	10870.42	25871.6	76.51646	182.1092	no
4-Chlorophenol	1388161	6957198	10870.42	444211.4	3687315	10870.42	10870.42	10870.42	25871.6	76.51646	182.1092	no
2,3-Dichlorophenol	---	---	4348.169	---	---	4348.169	4348.169	4348.169	10348.64	30.60659	72.84367	no
2,5-Dichlorophenol	---	---	54352.11	---	---	54352.11	54352.11	54352.11	129358	382.5823	910.5459	no
2,6-Dichlorophenol	---	---	21740.84	---	---	21740.84	21740.84	21740.84	51743.21	153.0329	364.2184	no
3,4-Dichlorophenol	---	---	32611.27	---	---	32611.27	32611.27	32611.27	77614.81	229.5494	546.3276	no
2,4-Dichlorophenoxyacetic acid (2,4-D)	---	---	1.1E+007	---	---	1.1E+007	1.1E+007	1.1E+007	2.6E+007	76516.46	182109.2	no
2-(2,4,5-Trichlorophenoxy) propionic acid (2,4,5-TP, Silvex)	---	---	1087042	---	---	1087042	1087042	1087042	2587160	7651.646	18210.92	no
METALS AND CYANIDE												
Total Arsenic	2938802	1.3E+007	1.3E+007	940416.7	6873948	1.3E+007	940416.7	1231946	2924696	8671.618	20586.82	no
Total Cadmium	625748.3	174772.5	3696463	200239.5	92629.43	3696463	92629.43	121344.6	288077.5	854.1394	2027.766	no
Chromium III	1.5E+007	5E+007	2.9E+007	4915887	2.6E+007	2.9E+007	4915887	6439812	1.5E+007	45329.58	107614.5	no
Chromium VI	56947.21	383443.1	1.4E+007	18223.11	203224.8	1.4E+007	18223.11	23872.27	56673.86	168.036	398.9251	no
Total Copper	389990.5	2502682	4.2E+008	124797	1326422	4.2E+008	124797	163484	388118.6	1150.757	2731.951	no
Total Lead	2666277	1038752	3.9E+007	853208.5	550538.4	3.9E+007	550538.4	721205.3	1712175	5076.536	12051.93	no
Total Mercury	16801.18	1162.423	581200.7	5376.378	616.0841	581200.7	616.0841	807.0702	1916.022	5.680935	13.4868	no
Total Nickel	2.7E+007	3E+007	---	8640721	1.6E+007	---	8640721	1.1E+007	2.7E+007	79676.41	189155.4	no
Total Zinc	3026903	2.8E+007	2.8E+009	968608.9	1.5E+007	2.8E+009	968608.9	1268878	3012374	8931.579	21203.98	no
Total Cyanide	166361.8	188424.1	7.2E+007	53235.78	99864.78	7.2E+007	53235.78	69738.88	165563.3	490.8892	1165.393	no
DIOXIN												
2,3,7,8 TCDD; dioxin	---	---	0.199397	---	---	0.199397	0.199397	0.199397	0.474566	0.001404	0.00334	no
VOLATILE COMPOUNDS												
Benzene	8151367	4.1E+007	308925.5	2608437	2.2E+007	308925.5	308925.5	308925.5	735242.6	2174.514	5175.343	no
Bromoform	1.1E+007	5.3E+007	1095281	3398276	2.8E+007	1095281	1095281	1095281	2606769	7709.64	18348.94	no
Bromodichloromethane	---	---	56168.26	---	---	56168.26	56168.26	56168.26	133680.5	395.3662	940.9715	no
Carbon Tetrachloride	9894723	4.9E+007	61785.09	3166311	2.6E+007	61785.09	61785.09	61785.09	147048.5	434.9028	1035.069	no
Chloroform	1E+007	5.2E+007	1488459	3351883	2.8E+007	1488459	1488459	1488459	3542532	10477.2	24935.74	no
Dibromochloromethane	---	---	109528.1	---	---	109528.1	109528.1	109528.1	260676.9	770.964	1834.894	no
1,2-Dichloroethane	4.3E+007	2.1E+008	101102.9	1.4E+007	1.1E+008	101102.9	101102.9	101102.9	240624.8	711.6591	1693.749	no
1,1-Dichloroethylene	4204351	2.1E+007	14042.07	1345392	1.1E+007	14042.07	14042.07	14042.07	33420.12	98.84154	235.2429	no
1,3-Dichloropropylene	2196411	1.1E+007	1071824	702851.5	5819044	1071824	702851.5	920735.5	2185868	6481.02	15386.24	no
Ethylbenzene	1.2E+007	5.8E+007	2.6E+008	3711427	3.1E+007	2.6E+008	3711427	4861970	1.2E+007	34223.21	81247.47	no
Methyl Chloride	2E+008	1E+009	---	6.4E+007	5.3E+008	---	6.4E+007	8.4E+007	2E+008	588211.4	1396441	no
Methylene Chloride	7E+007	3.5E+008	1235702	2.2E+007	1.9E+008	1235702	1235702	1235702	2940970	8698.056	20701.37	no
1,1,2,2-Tetrachloroethane	3377979	1.7E+007	44934.61	1080953	8949421	44934.61	44934.61	44934.61	106944.4	316.2929	752.7772	no

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[illegible]

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	(+12)	(+13)	(+14)	(+15)	(+16)	(+17)	(+18)	(+19)	(+20)	(+21)	(+22)	(+23)
Toxic	WLAA	WLAC	WLALH	LTAa	LTAC	LTALH	Limiting	WQBL	WQBL	WQBL	WQBL	Need
Parameters	Acute	Chronic	HHDW	Acute	Chronic	HHDW	A,C,HH	Avg	Max	Avg	Max	WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	4675528	2.3E+007	182546.9	1496169	1.2E+007	182546.9	182546.9	182546.9	434461.5	1284.94	3058.157	no
Toluene	4603040	2.3E+007	6.6E+008	1472973	1.2E+007	6.6E+008	1472973	1929594	4580945	13582.34	32245.09	no
1,1,1-Trichloroethane	1.9E+007	9.6E+007	2.2E+007	6123855	5.1E+007	2.2E+007	6123855	8022250	1.9E+007	56468.3	134058.3	no
1,1,2-Trichloroethane	6523993	3.3E+007	157271.1	2087678	1.7E+007	157271.1	157271.1	157271.1	374305.3	1107.025	2634.72	no
Trichloroethylene	1.4E+007	7.1E+007	786355.7	4523302	3.7E+007	786355.7	786355.7	786355.7	1871527	5535.126	13173.6	no
Vinyl Chloride	---	---	533598.5	---	---	533598.5	533598.5	533598.5	1269964	3755.979	6939.229	no
ACID COMPOUNDS												
2-Chlorophenol	935105.7	4674367	10870.42	299233.8	2477415	10870.42	10870.42	10870.42	25671.6	76.51646	182.1092	no
2,4-Dichlorophenol	732137	3659776	32611.27	234283.8	1939681	32611.27	32611.27	32611.27	77614.81	229.5494	546.3276	no
BASE NEUTRAL COMPOUNDS												
Benzidine	906110.2	4579426	72.46731	289955.2	2400596	22.46731	22.46731	22.46731	53.47219	0.158146	0.376389	no
Hexachlorobenzene	---	---	70.21033	---	---	70.21033	70.21033	70.21033	167.1006	0.494208	1.176214	no
Hexachlorobutadiene	18484.65	36960.11	25275.72	5915.087	19588.86	25275.72	5915.087	7748.764	18395.92	54.54324	129.4882	no
PESTICIDES												
Aldrin	10873.32	---	11.23365	3479.463	---	11.23365	11.23365	11.23365	26.73609	0.079073	0.186194	no
Hexachlorocyclohexane (gamma BHC, Lindane)	19209.54	7609.435	30892.55	6147.051	4033.003	30892.55	4033.003	5283.231	12542.63	37.18845	88.28709	no
Chlordane	8698.657	155.8122	53.35985	2783.57	82.58049	53.35985	53.35985	53.35985	126.9964	0.375598	0.893923	no
4,4'-DDT	3986.885	36.23541	53.35985	1275.803	19.20477	53.35985	19.20477	25.15824	59.72682	0.177088	0.420415	no
4,4'-DDE	190263.1	380471.8	53.35985	60890.6	201650	53.35985	53.35985	53.35985	126.9964	0.375598	0.893923	no
4,4'-DDD	108.7332	217.4124	75.82716	34.79463	115.2286	75.82716	34.79463	45.58097	108.2113	0.320843	0.761695	no
Dieldrin	860.4422	2018.312	14.04207	275.3415	1069.705	14.04207	14.04207	14.04207	33.42012	0.098842	0.235243	no
Endosulfan	797.3769	2029.183	51090.98	255.1606	1075.467	51090.98	255.1606	334.2604	793.5495	2.352846	5.585763	no
Endrin	313.1517	1358.828	28263.1	100.2085	720.1787	28263.1	100.2085	131.2732	311.6485	0.924027	2.193682	no
Heptachlor	1884.709	137.6945	19.65889	603.1069	72.97811	19.65889	19.65889	19.65889	46.78816	0.138378	0.32934	no
Toxaphene	2645.842	7.247081	67.40192	846.6693	3.840953	67.40192	3.840953	5.031649	11.94536	0.035418	0.084083	no
Other Parameters:												
Fecal Col. (col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	68864.37	398589.5	---	22036.6	211252.4	---	22036.6	28867.94	68533.82	203.2003	482.4068	no
Ammonia	---	1.4E+008	---	---	7.7E+007	---	7.7E+007	1E+008	2.4E+008	708351.5	1681659	no
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no
TDS	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

Documentation and Explanation of Water Quality Screen
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

Receiving Water Characteristics:

Receiving Water: Mississippi River
Critical Flow, Qrc (cfs): 141,955
Harmonic Mean Flow, Qrh (cfs): 366,748
Segment No.: 070301
Receiving Stream Hardness (mg/L): 154.0
Receiving Stream TSS (mg/L): 50.8
MZ Stream Factor, Fs: 1/3
Plume distance, Pf: N/A

Effluent Characteristics:

Company: Placid Refining Company LLC
Facility flow, Qe (MGD): 0.844
Effluent Hardness: N/A
Effluent TSS: N/A
Pipe/canal width, Pw: N/A
Permit Number: LA0039390

Variable Definition:

Qrc, critical flow of receiving stream, cfs
Qrh, harmonic mean flow of the receiving stream, cfs
Pf = Allowable plume distance in feet, specified in LAC 33.IX.1115.D
Pw = Pipe width or canal width in feet
Qe, total facility flow, MGD
Fs, stream factor from LAC.IX.33.11 (1 for harmonic mean flow)
Cu, ambient concentration, ug/L
Cr, numerical criteria from LAC.IX.1113, Table 1
WLA, wasteload allocation
LTA, long term average calculations
WQBL, effluent water quality based limit
ZID, Zone of Initial Dilution in % effluent
MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 \times F_s + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Es \times Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

Discharge from a canal:

Critical
 Dilution = $\frac{(2.8) P_w n^{1/2}}{Pf}$

Critical
 Dilution = $\frac{(2.38) (P_w^{1/2})}{(Pf)^{1/2}}$

$$WLA = \frac{(Cr-Cu) Pf}{(2.8) P_w n^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2}}{2.38 P_w^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rh} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rh} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

Discharge from a canal:

Critical
 Dilution = $\frac{(2.8) P_w n^{1/2}}{Pf}$

Critical
 Dilution = $\frac{(2.38) (P_w^{1/2})}{(Pf)^{1/2}}$

$$WLA = \frac{(Cr-Cu) Pf^*}{(2.8) P_w n^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2*}}{2.38 P_w^{1/2}}$$

* Pf is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

If a site specific dilution is used, WLA are calculated by subtracting Cu from Cr and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr - Cu)}{\text{site specific dilution}}$$

Longterm Average Calculations:

$$LTAA = WLAa \times 0.32$$

$$LTAC = WLAC \times 0.53$$

$$LTAh = WLAh$$

WQBL Calculations:

Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:

$$\text{Daily Maximum} = \text{Min}(LTAA, LTAC) \times 3.11$$

$$\text{Monthly Average} = \text{Min}(LTAC, LTAh) \times 1.31$$

If human health LTA is more limiting:

$$\text{Daily Maximum} = LTAh \times 2.38$$

$$\text{Monthly Average} = LTAh$$

Mass Balance Formulas:

$$\text{mass (lbs/day)} = (\text{ug/L}) \times 1/1000 \times (\text{flow, MGD}) \times 8.34 = \text{lbs/day}$$

$$\text{concentration(ug/L)} = \frac{\text{lbs/day}}{(\text{flow, MGD}) \times 8.34 \times 1/1000} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

- (*1) Parameter being screened.
- (*2) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
- (*3) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*4) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*5) Minimum analytical Quantification Levels (MQL's). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present

on-site and/or in the waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.

- (*6) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.
- (*7) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (*18) - (*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.
- (*8) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(1.1280[\ln(\text{hardness})] - 1.6774)}$
Chromium III	$e^{(0.8190[\ln(\text{hardness})] + 3.6880)}$
Copper	$e^{(0.9422[\ln(\text{hardness})] - 1.3884)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 1.4600)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 3.3612)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Arsenic	$1 + 0.48 \times \text{TSS}^{-0.73} \times \text{TSS}$
Cadmium	$1 + 4.00 \times \text{TSS}^{-1.13} \times \text{TSS}$
Chromium III	$1 + 3.36 \times \text{TSS}^{-0.93} \times \text{TSS}$
Copper	$1 + 1.04 \times \text{TSS}^{-0.74} \times \text{TSS}$
Lead	$1 + 2.80 \times \text{TSS}^{-0.80} \times \text{TSS}$
Mercury	$1 + 2.90 \times \text{TSS}^{-1.14} \times \text{TSS}$
Nickel	$1 + 0.49 \times \text{TSS}^{-0.57} \times \text{TSS}$
Zinc	$1 + 1.25 \times \text{TSS}^{-0.70} \times \text{TSS}$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
--------------	-------------------

Copper	$1 + (10^{4.86} \times \text{TSS}^{-0.72} \times \text{TSS}) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times \text{TSS}^{-0.85} \times \text{TSS}) \times 10^{-6}$
Zinc	$1 + (10^{5.16} \times \text{TSS}^{-0.52} \times \text{TSS}) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

- (*9) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness dependent criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(0.7852[\ln(\text{hardness})] - 3.4900)}$
Chromium III	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$
Copper	$e^{(0.8545[\ln(\text{hardness})] - 1.3860)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 4.7050)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 1.1645)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$

Dissolved to total metal multiplier formulas are the same as (*8), acute numerical criteria for aquatic life protection.

- (*10) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primary contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.
- (*11) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.
- (*12) Wasteload Allocation for acute aquatic criteria (WLAA). Dilution type WLAA is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAA formulas for streams:

$$\text{WLAA} = (\text{Cr}/\text{Dilution Factor}) - \frac{(\text{Fs} \times \text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Dilution WLAA formulas for static water bodies:

$$\text{WLAA} = (\text{Cr}-\text{Cu})/\text{Dilution Factor}$$

Cr represents aquatic acute numerical criteria from column (*8).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*13) Wasteload Allocation for chronic aquatic criteria (WLAC). Dilution type WLAC is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAC formula:

$$WLAC = (Cr/Dilution\ Factor) - \frac{(Ps \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAC formulas for static water bodies:

$$WLAC = (Cr-Cu)/Dilution\ Factor)$$

Cr represents aquatic chronic numerical criteria from column (*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*14) Wasteload Allocation for human health criteria (WLAH). Dilution type WLAH is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution WLAH formula:

$$WLAH = (Cr/Dilution\ Factor) - \frac{(Ps \times Qrc \times Qrh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAH formulas for static water bodies:

$$WLAH = (Cr-Cu)/Dilution\ Factor)$$

Cr represents human health numerical criteria from column (*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*15) Long Term Average for aquatic numerical criteria (LTAA). WLAa numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32. WLAa X 0.32 = LTAA.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*16) Long Term Average for chronic numerical criteria (LTAC). WLAC numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53. WLAC X 0.53 = LTAC.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*17) Long Term Average for human health numerical criteria (LTAH). WLAH numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1. WLAH X 1 = LTAH.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*18) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation. If standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then the type of limit, Aquatic or Human Health (HH), is indicated.
- (*19) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ($LTA_{\text{limiting aquatic}} \times 1.31 = WQBL_{\text{monthly average}}$). If human health criteria was the most limiting criteria then $LTA_{\text{HH}} = WQBL_{\text{monthly average}}$. If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.
- (*20) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 3.11 = WQBL_{\text{daily max}}$). If human health criteria was the most limiting criteria then LTA_{HH} is multiplied by 2.38 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 2.38 = WQBL_{\text{daily max}}$). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.
- (*21) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above. $\text{Monthly average WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{monthly average WQBL, lbs/day}$.
- (*22) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above. $\text{Daily maximum WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{daily maximum WQBL, lbs/day}$.
- (*23) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

Appendix C

Effluent Data

IF NONE OF YOUR PROCESSES BELONG IN ANY OF THE ABOVE
CATEGORIES, SKIP TO E. BELOW

Number of industrial category outfalls: 7

SECTION III – LABORATORY ANALYSIS (cont.)

Outfall Number:	001	Effluent			
Pollutant	MQL* ($\mu\text{g/l}$)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Volatile Organic Chemicals – EPA Method 624 suggested:					
acrolein	50			0	0
acrylonitrile	50			0	0
benzene	10			0	0
bromoform	10			0	0
carbon tetrachloride	10			0	0
chlorobenzene	50			0	0
chlorodibromomethane	10			0	0
chloroethane	10			0	0
2-chloroethylvinyl ether	50			0	0
chloroform	10			0	0
dichlorobromomethane	10			0	0
1,1-dichloroethane	10			0	0
1,2-dichloroethane	10			0	0
1,1-dichloroethylene	10			0	0
1,2-dichloropropane	10			0	0
1,3-Dichloropropylene	10			0	0
ethylbenzene	10			0	0
methyl bromide	50			0	0
methyl chloride	50			0	0
methylene chloride	20			0	0
1,1,2,2-tetrachloroethane	10			0	0
tetrachloroethylene	10			0	0
toluene	10			0	0
1,2-trans-dichloroethylene	10			0	0
1,1,1-trichloroethane	10			0	0
1,1,2-trichloroethane	10			0	0

SECTION III - LABORATORY ANALYSIS (cont.)

Outfall Number: 001		Effluent			
Pollutant	MCL* (ppb)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
trichloroethene (trichloroethylene)	10			0	0
vinyl chloride (chloroethylene)	10			0	0
<i>Acid Extractable Organic Chemicals - EPA Method 625 suggested</i>					
2-chlorophenol	10			0	0
3-chlorophenol	10			0	0
4-chlorophenol	10			0	0
2,3-dichlorophenol	10			0	0
2,4-dichlorophenol	10			0	0
2,5-dichlorophenol	10			0	0
2,6-dichlorophenol	10			0	0
3,4-dichlorophenol	10			0	0
2,4-dimethylphenol	10			0	0
2,4-dinitrophenol	50			0	0
2-methyl 4,6-dinitrophenol (4,6-dinitro-o-cresol)	50			0	0
2-nitrophenol	20			0	0
4-nitrophenol	50			0	0
4-chloro-3-methylphenol (p-chloro-m-cresol)	10			0	0
pentachlorophenol	50			0	0
phenol	10			0	0
2,4,6-trichlorophenol	10			0	0
<i>Base/Neutral Extractable Organic Chemicals - EPA Method 625 suggested</i>					
acenaphthene	10			0	0
acenaphthylene	10			0	0
anthracene	10			0	0
benzidine	50			0	0
benzo(a)anthracene	10			0	0
benzo(a)pyrene	10			0	0
3,4-benzo fluoranthene	10			0	0
benzo(ghi)perylene	20			0	0
benzo(k)fluoranthene	10			0	0
bis(2-chloroethoxy)methane	10			0	0

SECTION III - LABORATORY ANALYSIS (cont.)

Outfall Number: 001		Effluent			
Pollutant	MQL* (µg/l)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
bis(2-chloroethyl)ether	10			0	0
bis(2-chloroisopropyl)ether	10			0	0
bis(2-ethylhexyl)phthalate	10			0	0
4-bromophenyl phenyl ether	10			0	0
butylbenzyl phthalate	10			0	0
2-chloronaphthalene	10			0	0
4-chlorophenyl phenyl ether	10			0	0
chrysene	10			0	0
dibenzo(a,h)anthracene	20			0	0
1,2-dichlorobenzene	10			0	0
1,3-dichlorobenzene	10			0	0
1,4-dichlorobenzene	10			0	0
3,3'-dichlorobenzidine	50			0	0
diethyl phthalate	10			0	0
dimethyl phthalate	10			0	0
di-n-butyl phthalate	10			0	0
2,4-dinitrotoluene	10			0	0
2,6-dinitrotoluene	10			0	0
di-n-octyl phthalate	10			<0.099	<0.099
1,2-diphenylhydrazine (as azobenzene)	20			0	0
fluoranthene	10			0	0
fluorene	10			0	0
hexachlorobenzene	10			0	0
hexachlorobutadiene	10			0	0
hexachlorocyclopentadiene	10			0	0
hexachloroethane	20			0	0
indeno(1,2,3-cd)pyrene	20			0	0
isophorone	10			0	0
naphthalene	10			0	0
nitrobenzene	10			0	0
N-nitrosodimethylamine	50			0	0
N-nitrosodi-n-propylamine	20			0	0

SECTION III - LABORATORY ANALYSIS (cont.)

Outfall Number: 001		Effluent			
Pollutant	MOI- ($\mu\text{g/l}$)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
N-nitrosodiphenylamine	20			0	0
phenanthrene	10			0	0
pyrene	10			0	0
1,2,4-trichlorobenzene	10			0	0
Pesticides & PCB's - EPA Method 608 required					
aldrin	0.05			0	0
Aroclor 1016 (PCB-1016)	1.0			0	0
Aroclor 1221 (PCB-1221)	1.0			0	0
Aroclor 1232 (PCB-1232)	1.0			0	0
Aroclor 1242 (PCB-1242)	1.0			0	0
Aroclor 1248 (PCB-1248)	1.0			0	0
Aroclor 1254 (PCB-1254)	1.0			0	0
Aroclor 1260 (PCB-1260)	1.0			0	0
alpha-BHC	0.05			0.002	0.002
beta-BHC	0.05			0.003	0.003
delta-BHC	0.05			0	0
gamma-BHC	0.05			0	0
chlordane	0.2			<0.005	<0.005
4,4'DDT	0.1			0	0
4,4'DDE	0.1			0	0
4,4'DDD	0.1			0	0
dieldrin	0.1			0	0
alpha-endosulfan	0.1			0	0
beta-endosulfan	0.1			<0.001	<0.001
endosulfan sulfate	0.1			0	0
endrin	0.1			0	0
endrin aldehyde	0.1			0	0
heptachlor	0.05			0	0
heptachlor epoxide	0.05			0	0
Toxaphene	5.0			0	0
2,4-dichlorophenoxyacetic acid (2,4-D)					

SECTION III - LABORATORY ANALYSIS (cont.)

Outfall Number: 001		Effluent			
Pollutant	MOLE (ppm)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
2-(2,4,5-trichlorophenoxy) propionic acid	—				
2,3,7,8-tetrachlorodibenzo-p-dioxin use EPA Method 1613	10 ppq				
<i>Metals, Cyanide & Total Phenols</i>					
Antimony, Total	60			0	0
Arsenic, Total	10			0	0
Beryllium, Total	5			0	0
Cadmium, Total	1			0.014	0.014
Chromium, Total	10			0.03	0.06
Chromium, Hexavalent	10			0.11	0.26
Copper, Total	10			0	0
Lead, Total	5			0	0
Mercury, Total	0.2			0.002	0.002
Nickel, Total [Marine]	5				
Nickel, Total [Freshwater]	40			0	0
Selenium, Total	5			0	0
Silver, Total	2			0	0
Thallium, Total	10			0	0
Zinc, Total	20			0	0
Cyanide, Total	20				
Cyanide, Free	—			0.18	0.18
Phenols, Total	5			0.33	3.5
<i>Additional Metals if expected to be present -- Use EPA Approved Method</i>					
Aluminum, Total					
Barium, Total					
Boron, Total					
Cobalt, Total					
Iron, Dissolved					
Magnesium, Total					
Manganese, Total					
Molybdenum					
Tin, Total					

SECTION III - LABORATORY ANALYSIS (cont.)

Outfall Number: 001		Effluent			
Pollutant	MQL* (μ R/L)	Concentration (mg/l)		Mass (lbs/day)	
		Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
Titanium, Total					

* Minimum Quantification Level (MQL).

Appendix D

Previous Permit Limits

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall 001, the continuous discharge of treated process wastewater, treated stormwater, treated sanitary wastewater, and treated utility wastewater which discharges to the Mississippi River (estimated flow is 0.822 MGD).

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic Requirements</u>		<u>Discharge Limitations</u>				<u>Monitoring</u>	
		Other Units (lbs/day, UNLESS STATED) (mg/L, UNLESS STATED)					
<u>CONVENTIONAL</u>	STORET Code	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow-MGD	50050	Report	Report	---	---	Continuous	Recorder
pH Range Excursions (Continuous Monitoring), Number of Events >60 Minutes	82581	---	---	0(*1)	---	Continuous	Recorder
pH Range Excursions (Continuous Monitoring), Monthly Total Accumulated Time in Minutes	82582	---	---	446(*1)	---	Continuous	Recorder
pH Minimum/Maximum Values (Standard Units)	00400	---	---	Report (Min)	Report (Max)	Continuous	Recorder
BOD ₅	00310	460	828	---	---	3/week	24-hr. Composite
TSS	00530	368	577	---	---	2/week	24-hr. Composite
Oil & Grease	03582	134	252	---	---	3/week	Grab
COD	00340	3206	6192	---	---	3/week	24-hr. Composite
Ammonia (as N)	00610	236	518	---	---	1/week	24-hr. Composite
Sulfide (as S)	00745	2.3	5.1	---	---	1/week	Grab
Phenolic Compounds(*2)	32730	2.93	6.2	---	---	1/week	Grab
<u>METALS(*2)</u>							
Total Chromium	01034	3.44	9.87	---	---	1/year	24-hr. Composite
Chromium (6+)	01032	0.29	0.66	---	---	1/year	24-hr. Composite
Total Mercury	71900	5.7	13.5	---	---	1/year	24-hr. Composite
<u>WHOLE EFFLUENT (ACUTE)</u>		(Percent %, UNLESS STATED)					
<u>TOXICITY TESTING</u>		STORET				Monthly Avg	
Measurement	Sample Code	Minimum		Minimum		Frequency	48-Hour Type (*3)
NOEC, Pass/Fail (0/1), TEM6C Lethality, Static Renewal, 48-Hour Acute, <u>Pimephales promelas</u>	---	---	---	Report	Report	1/year	24-hr. Composite

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall 001 continued)

<u>Effluent Characteristic Requirements</u>		<u>Discharge Limitations</u>			<u>Monitoring</u>	
<u>WHOLE EFFLUENT (ACUTE)</u>		Other units (Percent %, UNLESS STATED)			48-Hour	
<u>TOXICITY TESTING</u>		Monthly Avg			48-Hour	
Measurement	Sample Code	Minimum	Minimum	Frequency	Type (*3)	
NOEC, Value (%), 24-hr. Composite Lethality, Static Renewal, 48-Hour Acute, <u>Pimephales promelas</u>	STO6T TOM6C	---	---	Report	Report	1/year
NOEC, Pass/Fail [0/1], Lethality, Static Renewal 48-Hour Acute, <u>Daphnia pulex</u>	TEM3D	---	---	Report	Report	1/year
NOEC, Value (%), 24-hr. Composite Lethality, Static Renewal, 48-Hour Acute <u>Daphnia pulex</u>	TOM3D	---	---	Report	Report	1/year

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall 001, at the point of discharge from the treatment facility prior to combining with the waters of the Mississippi River.

FOOTNOTE(S):

(*1) The pH shall be within the range of 6.0 - 9.0 standard units at all times subject to the continuous monitoring pH range excursion provisions at Part II.I.

(*2) See Part II.J.

(*3) See Part II.O.3.d.

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

During the period beginning the effective date and lasting through the expiration date the permittee is authorized to discharge from:

Outfall 002, the intermittent discharge of low contamination potential stormwater runoff from the northern lay down area, and parking lot.

Outfall 003, the intermittent discharge of low contamination potential stormwater runoff from the boiler house, maintenance shop area and administrative parking lot.

Outfall 004, the intermittent discharge of low contamination potential stormwater runoff from the west central plant area and the storage lagoon.

Outfall 005, the intermittent discharge of low contamination potential stormwater runoff from non-process areas surrounding the amine and sulphur units.

Outfall 006, the intermittent discharge of low contamination potential stormwater runoff from the tank farm (south central area of the facility) and previously monitored uncontaminated storm water runoff from the storage lagoon.

Outfall 007, the intermittent discharge of low contamination potential stormwater runoff from the tank farm area.

Such discharges shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristic</u>		<u>Discharge Limitations</u>				<u>Monitoring Requirements</u>	
		Other Units					
		(lbs/day, UNLESS STATED) (mg/L, UNLESS STATED)					
<u>STORET</u>		<u>Monthly</u>	<u>Daily</u>	<u>Monthly</u>	<u>Daily</u>	<u>Measurement</u>	<u>Sample</u>
<u>Code</u>		<u>Average</u>	<u>Maximum</u>	<u>Average</u>	<u>Maximum</u>	<u>Frequency (*)</u>	<u>Type</u>
Flow-MGD	50050	Report	Report	---	---	1/quarter	Estimate
TOC	00680	---	---	---	50	1/quarter	Grab
Oil and Grease	03582	---	---	---	15	1/quarter	Grab
pH Minimum/Maximum Values	00400	---	---	6.0 (*)	9.0 (*)	1/quarter	Grab
(Standard Units)				(Min)	(Max)		

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

Outfall 002, at the point of discharge from the oil and water separator at the northern lay down area of the facility, prior to mixing with waters of the Intracoastal Canal via local drainage.

Outfall 003, at the point of discharge from the oil and water separator at the boiler control house and maintenance shop area prior to mixing with waters of the Intracoastal Canal via local drainage.

Outfall 004, at the point of discharge from the oil and water separator at the storage lagoon prior to mixing with waters of the Intracoastal Canal via local drainage.

Outfall 005, at the point of discharge from the oil and water separator at the southwest corner of the facility prior to mixing with waters of the Intracoastal Canal via local drainage.

Outfall 006, at the point of discharge from the oil and water separator in the south central area of the facility prior to mixing with waters of the Intracoastal Canal via local drainage.

Outfall 007, at the point of discharge from the oil and water separator at the light ends storage area and adjacent areas prior to mixing with waters of the Intracoastal Canal via local drainage.

PART :

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Permit No. LA0039390

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

FOOTNOTES:

(*1) When discharging.

(*2) The permittee shall report on the Discharge Monitoring Reports both the minimum and maximum instantaneous pH values measured.

Appendix E

Biomonitoring Recommendation

BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: LA0039390

Facility Name: Placid Refining Company, LLC – Port Allen Refinery

Previous Critical Dilution: 0.0269% Proposed Critical Dilution: 0.028% (10:1 ACR)

Date of Review: 12/09/05; revised 03/20/06 Name of Reviewer: Kim Gunderson

Recommended Frequency by Species:

Pimephales promelas (Fathead minnow): Once/Year¹
Daphnia pulex (water flea): Once/Year¹

Recommended Dilution Series: 0.012%, 0.016%, 0.021%, 0.028%, and 0.037%

Number of Tests Performed during previous 5 years by Species:

Pimephales promelas (Fathead minnow): 5
Daphnia pulex (water flea): 4
Daphnia magna (water flea): N/A – Testing of species was not required
Ceriodaphnia dubia (water flea): 1²

Number of Failed Tests during previous 5 years by Species:

Pimephales promelas (Fathead minnow): No failures on file during the past 5 years
Daphnia pulex (water flea): No failures on file during the past 5 years
Daphnia magna (water flea): N/A – Testing of species was not required
Ceriodaphnia dubia (water flea): No failures on file during the past 5 years

Failed Test Dates during previous 5 years by Species:

Pimephales promelas (Fathead minnow): No failures on file during the past 5 years
Daphnia pulex (water flea): No failures on file during the past 5 years
Daphnia magna (water flea): N/A – Testing of species was not required
Ceriodaphnia dubia (water flea): No failures on file during the past 5 years

Previous TRE Activities: N/A – No previous TRE Activities

¹ An acute critical dilution of less than 1% shall have an established monitoring frequency of once/year.

² Testing conducted during the period 01/01/00 – 12/31/00 used the previous biomonitoring requirements of freshwater chronic with a critical dilution of 0.009%.

Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

Placid Refining Company, LLC owns and operates a petroleum refinery in Port Allen, West Baton Rouge Parish, Louisiana. LPDES Permit LA0039390, effective March 1, 2001, contained freshwater acute biomonitoring as an effluent characteristic of Outfall 001 for *Daphnia pulex* and *Pimephales promelas*. The effluent series consisted of 0.0113%, 0.0151%, 0.0202%, 0.0269%, and 0.036% concentrations, with 0.0269% being defined as the critical dilution. The testing was to be performed once per year. Data on file indicate that the permittee has complied with the biomonitoring requirements contained in LA0039390 with no toxicity failures in the last five years.

It is recommended that freshwater acute biomonitoring continue to be an effluent characteristic of Outfall 001 (discharge of 0.844 MGD of treated process wastewater, including stormwater, utility wastewater, and sanitary wastewater) in LA0039390. The effluent dilution series shall be 0.012%, 0.016%, 0.021%, 0.028%, and 0.037% concentrations, with 0.028% being defined as the critical dilution (the 10:1 Acute-to-Chronic ratio has been implemented because the critical dilution is less than 5%). Since the proposed critical dilution is less than 1% (10:1 ACR), the biomonitoring frequency shall be once per year for *Daphnia pulex* and *Pimephales promelas*.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, EPA Region 6 Post-Third Round Whole Effluent Toxicity Testing Frequencies (Revised June 30, 2000), and the Best Professional Judgement (BPJ) of the reviewer.